TREND STUDY 1-9-96

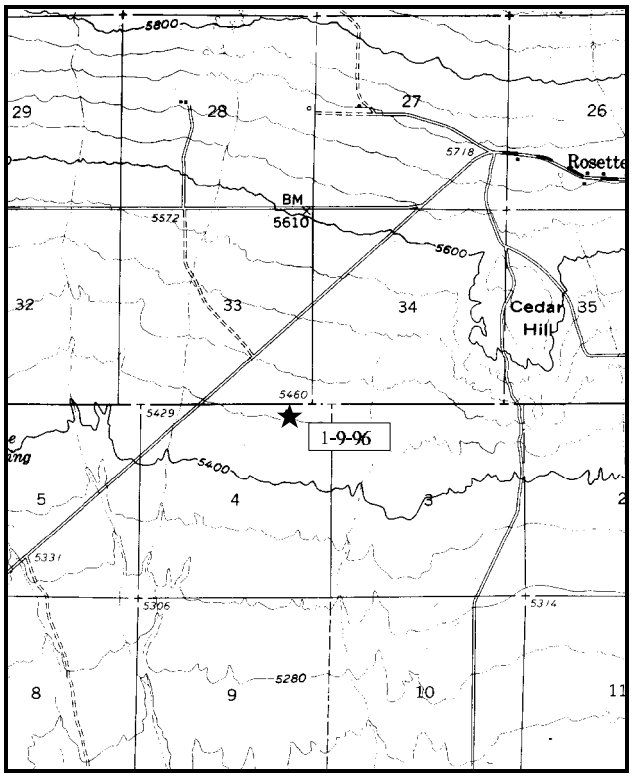
Study site name: South West Rosette . Range type: Sagebrush/grass .

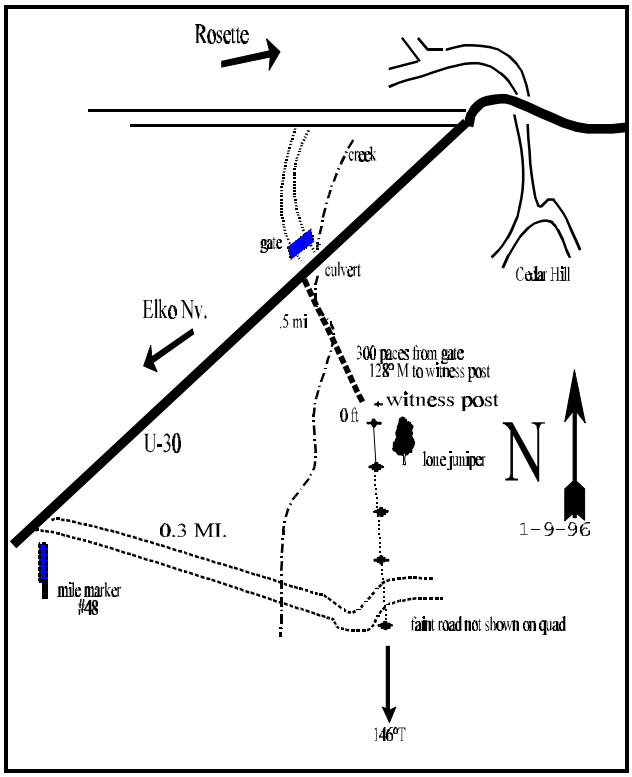
Compass bearing: frequency baseline 146 degrees.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

On U-30, proceed northeast towards Rosette. Travel 0.5 miles from mile marker 48 to a point where a gate passes north to south through a culvert. Park here and proceed to the west end of the gate. Take a bearing of 128 degrees magnetic and walk ~300 paces to the witness post. The 0-foot post of the baseline is a few paces south of the witness post and is marked by browse tag #7914. Please note that 300 paces will only be approximate due to the distance covered and the dense shrubs to be traversed. Use care to stay on specified bearing and look for a lone juniper towards end of baseline when approaching 300 paces. If one encounters a faint dirt road, backtrack as this road is just beyond the three hundred foot stake. Baseline bearing is 146 degrees true (163 degrees magnetic). The site can also be accessed by finding the faint road to the south and driving about 0.3 miles to the 300' stake which is just off the road on the north side.





Map Name: Park Valley, Utah Diagrammatic Sketch

Township 12N Range 14W , Section 4 , UTM. 2-96-602E 46-30-612N

DISCUSSION

Trend Study No. 1-9

This sagebrush-grass site is located southwest of Rosette on nearly flat terrain at an elevation of 5,440 feet. This site represents a compromise from the original goal to sample a winter deer concentration area north or northwest of Rosette. This area, however, is on private land for which we were unable to obtain permission to enter. The actual study site is on BLM land slightly south of the optimum location at a point where the density of juniper trees begins to thin out. Range type varies from sagebrush-grass and scattered Utah juniper to swales where perennial grasses have replaced the woody plants. The area is part of the Rosette allotment which is assigned for 60 cattle to use the area from mid October through January. However the area also appears to be used by sheep. Pellet groups and cattle droppings are infrequent.

Soil is deep, alluvially deposited with a moderately sandy clay loam texture and little surface rock. At the time the study was established (i.e., mid-June 1984), the soil was exceptionally moist. A small irrigation canal located one-quarter mile north may be the source of excess moisture, either as a result of sub-irrigation or occasional overflow. The net result was a development of a lush growth of perennial grass and death of big sagebrush in the lower swale areas. In addition, there were also patches of dead sagebrush in the vicinity which appear to have been sprayed with herbicide.

Status of the browse population was reported questionable in 1984. Wyoming big sagebrush, which is the dominant browse species, had been damaged by possible excess soil moisture and herbicides. With this loss, the increaser species, narrowleaf low rabbitbrush was almost twice as numerous and apparently increasing. The sagebrush population had a decadent appearance (32%). Utilization was reported moderate to heavy, coincidentally 32% of the population also displayed heavy use. Data from 1990 show a reduction in the number of mature plants from 2,666 plants/acre to 1,333. The number of decadent plants was similar but 40% of the decadent shrubs were classified as dying (666 plants/acre). Utilization was light to moderate. The increased sample used in 1996 estimated a density of 3,460 Wyoming big sagebrush plants/acre. Utilization was light to moderate and decadency declined to 30%. However, 30% percent of the shrubs encountered were dead (1,520 plants/acre) indicating a past die off. Density of the increaser, narrowleaf low rabbitbrush, has declined in density since 1984 (10,065 plants/acre to 5,460).

Grass cover and composition vary widely between microsites. However, even on the drier portion of the site, grasses are an important component. On these areas, vigorous clumps of Sandberg bluegrass, bottlebrush squirreltail, bluebunch wheatgrass, and western wheatgrass provide moderately good cover. Most of the species were green and succulent and showed evidence of current use at the time of study establishment (1984). Forbs are not abundant and include a number of annuals, especially on the drier areas. Most annual forbs are members of the mustard and borage families. The more prevalent perennials are longleaf phlox, hoods phlox, and Douglas chaenactis, none of which have appreciable forage value. Hoods phlox makes up 80% of the deficient forb cover.

1984 TREND ASSESSMENT

Soil trend is stable. There is very little erosion due primarily to the lack of slope. Vegetative trend is more difficult to predict. Our best assessment is that there is a stable or perhaps slightly declining stand of Wyoming big sagebrush. Conversely, narrowleaf low rabbitbrush and perennial grasses appear to be increasing over much of the area.

1990 TREND ASSESSMENT

Wyoming big sagebrush is declining. Nested frequency and quadrat frequency values have decreased on this valley winter range. Density of mature plants decreased 30% and the percentage of decadent sagebrush has increased from 32% to 53% since 1984, yet the sagebrush is only moderately hedged, and averages 17% canopy cover. Trend for the herbaceous understory is stable. Sum of nested frequency of grasses is stable while frequency of forbs declined slightly. There is a high percentage of bare soil, but this has decreased from 44% to 38% and basal vegetative cover increased from 2% to 14.5%. There are no obvious signs of erosion that would be a concern to management.

TREND ASSESSMENT
soil - up slightly
browse - declining
herbaceous understory - stable

1996 TREND ASSESSMENT

Trend for soil is up with a decrease in percent bare ground (38% to 21%) and an increase in litter cover (30% to 37%). Trend for browse is up slightly. Utilization is mostly light to moderate and percent decadency has declined from 53% to 30%. Density of mature plants nearly doubled since 1990 (1,333 plants/acre to 2,320). Another positive aspect to the browse trend is the decline in density of the increaser, narrowleaf low rabbitbrush (6,732 plants/acre to 5,460). The herbaceous trend is also up slightly. Sum of nested frequency for all three perennial grass species increased since 1990. The grasses make up 87% of the herbaceous understory cover. Frequency of forbs declined slightly but the most numerous forb, hoods phlox, increased.

TREND ASSESSMENT
soil - up
browse - up slightly
herbaceous understory - up slightly

HERBACEOUS TRENDS --
Herd unit 01 , Study no: 9

Type	Species	Nested Frequency '84	'90	'96	Quadrat Frequency '84	'90	'96	Average Cover % '96
G	Agropyron smithii	47	55	70	15	19	23	1.91
G	Bromus tectorum (a)	-	-	45	-	-	18	.19
G	Poa secunda	[a]167	[b]223	[b]252	67	79	85	5.60
G	Sitanion hystrix	[a]186	[b]135	[b]154	77	62	65	2.81
Total for Grasses		400	413	521	159	160	191	10.52
F	Allium spp.	1	-	-	1	-	-	-
F	Arabis spp.	1	2	1	1	2	1	.00
F	Astragalus beckwithii	-	2	4	-	1	2	.01
F	Astragalus utahensis	-	1	3	-	1	1	.03
F	Castilleja chromosa	-	1	-	-	1	-	-
F	Chaenactis douglasii	[a]41	[b]-	[b]-	21	-	-	-
F	Crepis acuminata	2	-	-	1	-	-	-

Type	Species	Nested Frequency '84	'90	'96	Quadrat Frequency '84	'90	'96	Average Cover % '96
F	Cryptantha spp.	-	-	7	-	-	3	.01
F	Cymopterus spp.	$_{a}$-	$_{b}$46	$_{a}$7	-	22	3	.01
F	Delphinium nelsonii	3	-	-	1	-	-	-
F	Descurainia pinnata	-	-	6	-	-	2	.01
F	Erigeron pumilus	-	-	2	-	-	1	.00
F	Gayophytum ramosissimum	-	-	3	-	-	1	.00
F	Gilia congesta	-	5	-	-	3	-	-
F	Lappula occidentalis (a)	-	-	2	-	-	2	.01
F	Lygodesmia spinosa	-	-	1	-	-	1	.00
F	Machaeranthera spp	-	-	1	-	-	1	.00
F	Phlox hoodii	$_{a}$14	$_{b}$31	$_{c}$67	7	17	28	1.28
F	Phlox longifolia	$_{a}$112	$_{ab}$85	$_{b}$59	46	35	27	.16
F	Polygonum douglasii (a)	-	-	3	-	-	1	.00
F	Trifolium gymnocarpon	18	8	15	7	4	8	.04
F	Unknown forb-perennial	-	-	2	-	-	1	.00
Total for Forbs		192	181	183	85	86	83	1.61

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 01 , Study no: 9

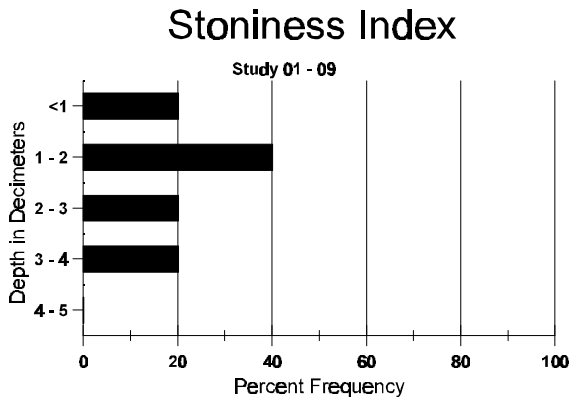
Type	Species	Strip Frequency '96	Average Cover % '96
B	Artemisia tridentata wyomingensis	82	12.09
B	Chrysothamnus nauseosus	2	-
B	Chrysothamnus nauseosus consimilis	8	.38
B	Chrysothamnus viscidiflorus stenophyllus	76	4.44
B	Leptodactylon pungens	17	.30
B	Opuntia fragilis	9	.21
Total for Browse		194	17.44

BASIC COVER --
Herd unit 01 , Study no: 9

Cover Type	Nested Frequency '96	Average Cover % '84	'90	'96
Vegetation	351	2.00	14.50	27.70
Rock	161	.75	2.25	1.90
Pavement	318	7.25	13.25	6.67
Litter	383	43.75	30.25	36.87
Cryptogams	145	2.25	2.00	2.69
Bare Ground	266	44.00	37.75	20.89

SOIL ANALYSIS DATA --
Herd Unit 01, Study no: 9

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
12.7	63.0 (11.0)	7.5	47.3	22.4	30.4	1.9	7.3	406.4	.6



PELLET GROUP FREQUENCY --
Herd unit 01 , Study no: 9

Type	Quadrat Frequency '96
Sheep	11
Rabbit	18
Deer	9
Cattle	1

BROWSE CHARACTERISTICS --
Herd unit 01 , Study no: 9

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
S	84	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
Y	84	1	5	4	-	-	-	-	-	-	10	-	-	-	666			10
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	84	3	28	9	-	-	-	-	-	-	39	-	1	-	2666	23	33	40
	90	6	14	-	-	-	-	-	-	-	20	-	-	-	1333	22	25	20
	96	71	44	1	-	-	-	-	-	-	111	-	3	2	2320	23	33	116
D	84	3	10	11	-	-	-	-	-	-	22	1	1	-	1600			24
	90	12	13	-	-	-	-	-	-	-	15	-	-	10	1666			25
	96	26	26	-	-	-	-	-	-	-	34	-	2	16	1040			52
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	1520			76
Total Plants/Acre (excluding Dead & Seedlings)													'84		4932	Dec:		32%
													'90		3132			53%
													'96		3460			30%
Chrysothamnus nauseosus																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	1	-	-	-	-	-	1	-	-	-	20	23	32	1
Total Plants/Acre (excluding Dead & Seedlings)													'84		0	Dec:		-
													'90		0			-
													'96		40			-
Chrysothamnus nauseosus consimilis																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	6	-	-	-	-	-	-	-	-	6	-	-	-	120	21	25	6
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	2	-	-	-	-	-	-	-	-	1	-	-	1	133			2
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Total Plants/Acre (excluding Dead & Seedlings)													'84		0	Dec:		0%
													'90		133			100%
													'96		200			20%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus stenophyllus																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	8	-	-	14	-	-	-	-	-	22	-	-	-	440			22
Y	84	27	5	3	-	-	-	-	-	-	34	-	1	-	2333			35
	90	7	-	-	1	-	-	-	-	-	8	-	-	-	533			8
	96	3	-	-	1	-	-	-	-	-	4	-	-	-	80			4
M	84	62	26	-	-	-	-	-	-	-	88	-	-	-	5866	11	14	88
	90	40	-	-	6	-	-	-	-	-	46	-	-	-	3066	9	11	46
	96	243	5	-	16	-	-	-	-	-	264	-	-	-	5280	10	15	264
D	84	15	12	1	-	-	-	-	-	-	26	-	2	-	1866			28
	90	45	-	-	2	-	-	-	-	-	38	-	-	9	3133			47
	96	2	3	-	-	-	-	-	-	-	1	-	-	4	100			5
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
Total Plants/Acre (excluding Dead & Seedlings)													'84		10065	Dec:		19%
													'90		6732			47%
													'96		5460			2%
Juniperus osteosperma																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Total Plants/Acre (excluding Dead & Seedlings)													'84		0	Dec:		-
													'90		0			-
													'96		0			-
Leptodactylon pungens																		
Y	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	7	-	-	-	-	-	-	-	-	7	-	-	-	466	7	6	7
	90	7	-	-	1	-	-	-	-	-	8	-	-	-	533	6	8	8
	96	27	-	-	6	-	-	-	-	-	33	-	-	-	660	8	13	33
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	3	-	-	-	-	-	-	-	-	1	-	-	2	200			3
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Total Plants/Acre (excluding Dead & Seedlings)													'84		666	Dec:		0%
													'90		733			27%
													'96		700			0%
Opuntia fragilis																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	8	-	-	2	-	-	-	-	-	10	-	-	-	200	4	10	10
Total Plants/Acre (excluding Dead & Seedlings)													'84		0	Dec:		-
													'90		0			-
													'96		220			-